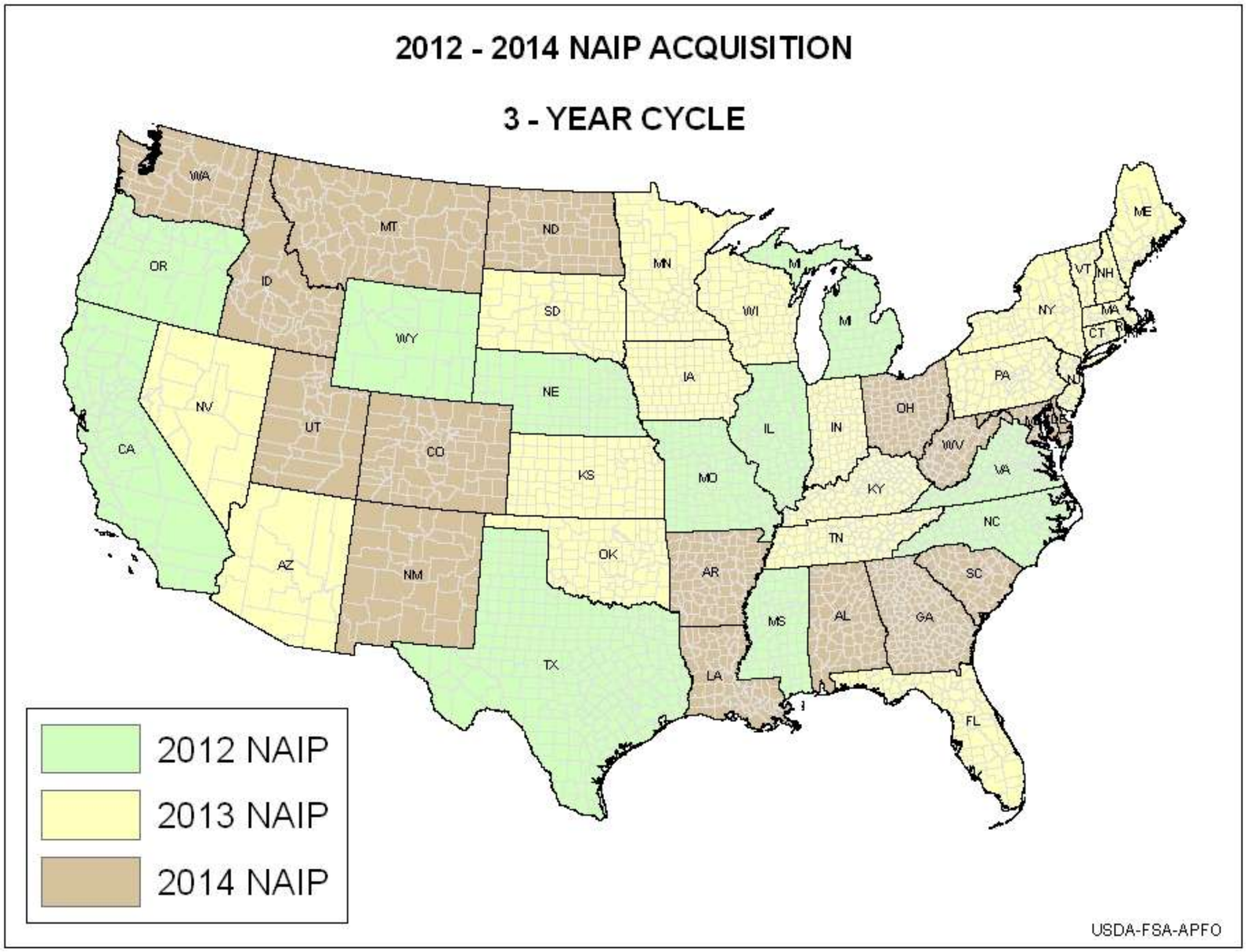
United States Department of Agriculture
Natural Resources Conservation Service

USDA-NRCS Agency Briefing
Hawaii, Pacific Basin, Alaska and Puerto Rico

USDA Imagery Planning and Coordination Meeting
December 7th, 2011

Anthony Kimmet
USDA-NRCS-National Geospatial Management Center



- **Dan Good (NRCS, National Geospatial Leader) has submitted a request for NAIP 2012 for $ 1,900,000.**

- **Dan is cautiously optimistic that NRCS will be able to fully fund at partner share for 2012.**

- **NAIP Orthoimagery via WMS has been selected for Conservation Data Streamlining Initiative (CDSI).**

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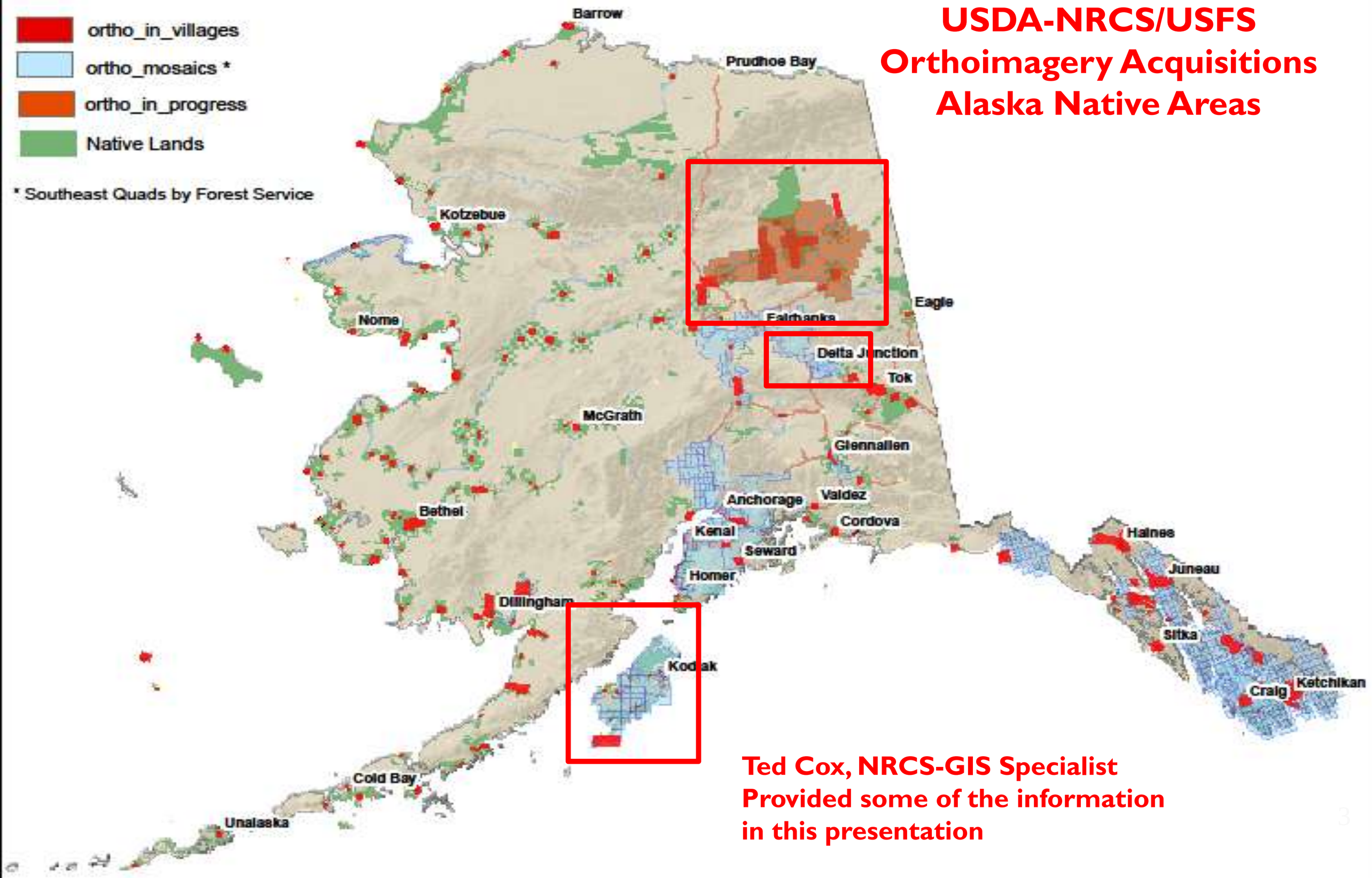
USDA-NRCS/USFS Orthoimagery Acquisitions Alaska Native Areas



Ted Cox, NRCS-GIS Specialist
Provided some of the information
in this presentation

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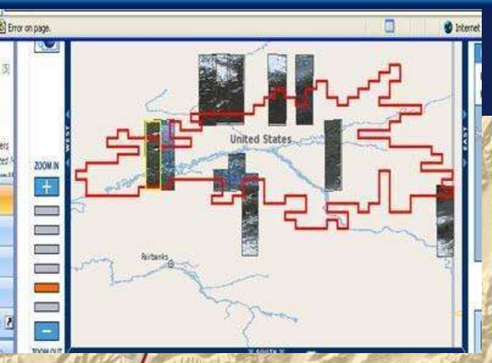
Yukon Flats, Alaska



2.8 million Acres of Native Corporation Lands to be covered by High-Resolution Orthoimagery in the Yukon Flats Area of Interior Alaska.

Fort Yukon

USDA-NRCS

USDA-NRCS has issued a contract for Orthoimagery in the Yukon Flats area.

- AOI = 51,000 Sq, Miles

- One Meter, Four Band Orthoimagery

- New DSM DEM's to be generated and used for Ortho-rectification.

- $ 375,000 for Ortho's and DEM's

- To be used by USDA, USGS, BLM and Native Alaskans.

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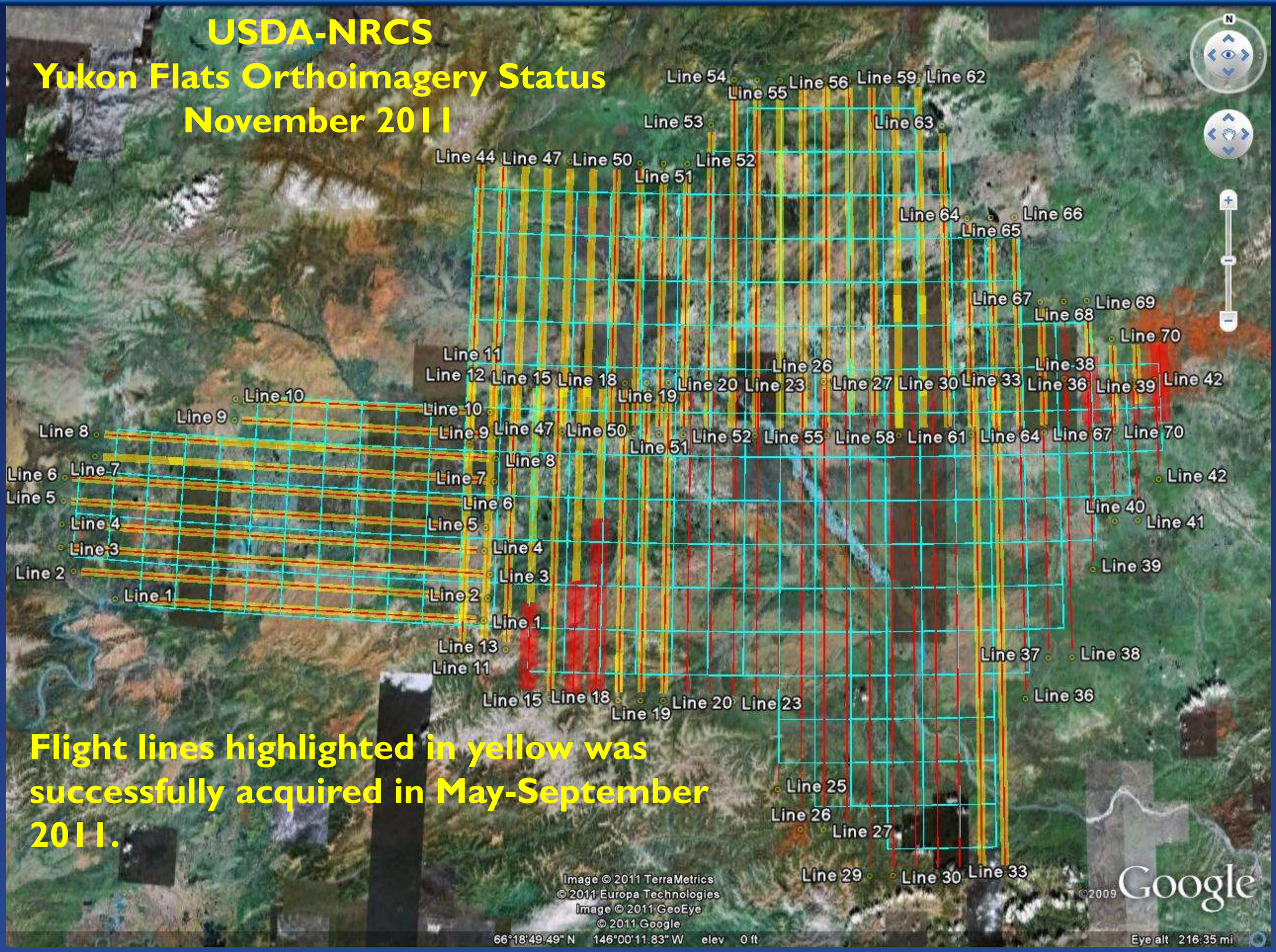
USDA-NRCS
Yukon Flats Orthoimagery Status
November 2011



Flight lines highlighted in yellow was successfully acquired in May-September 2011.

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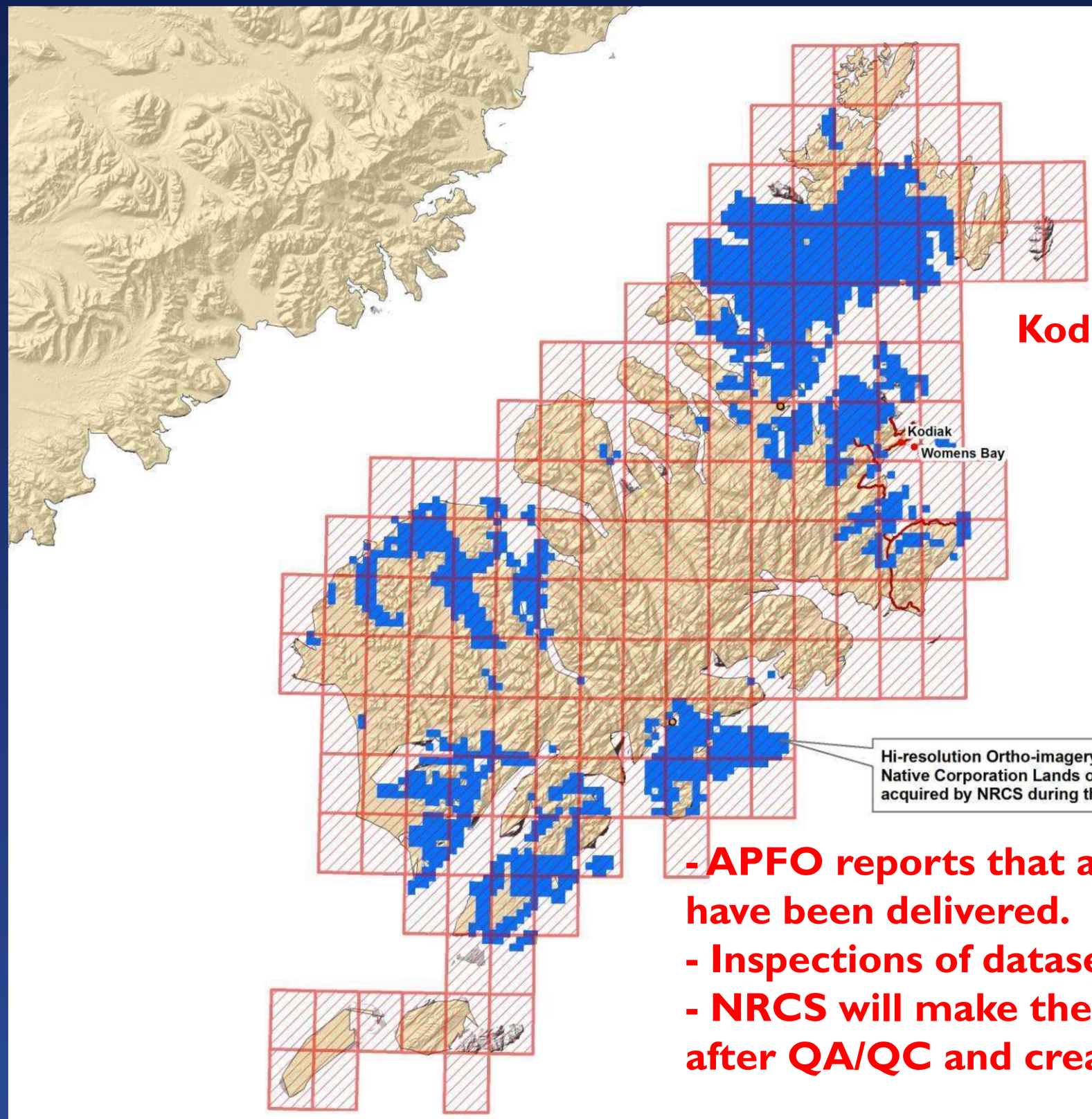
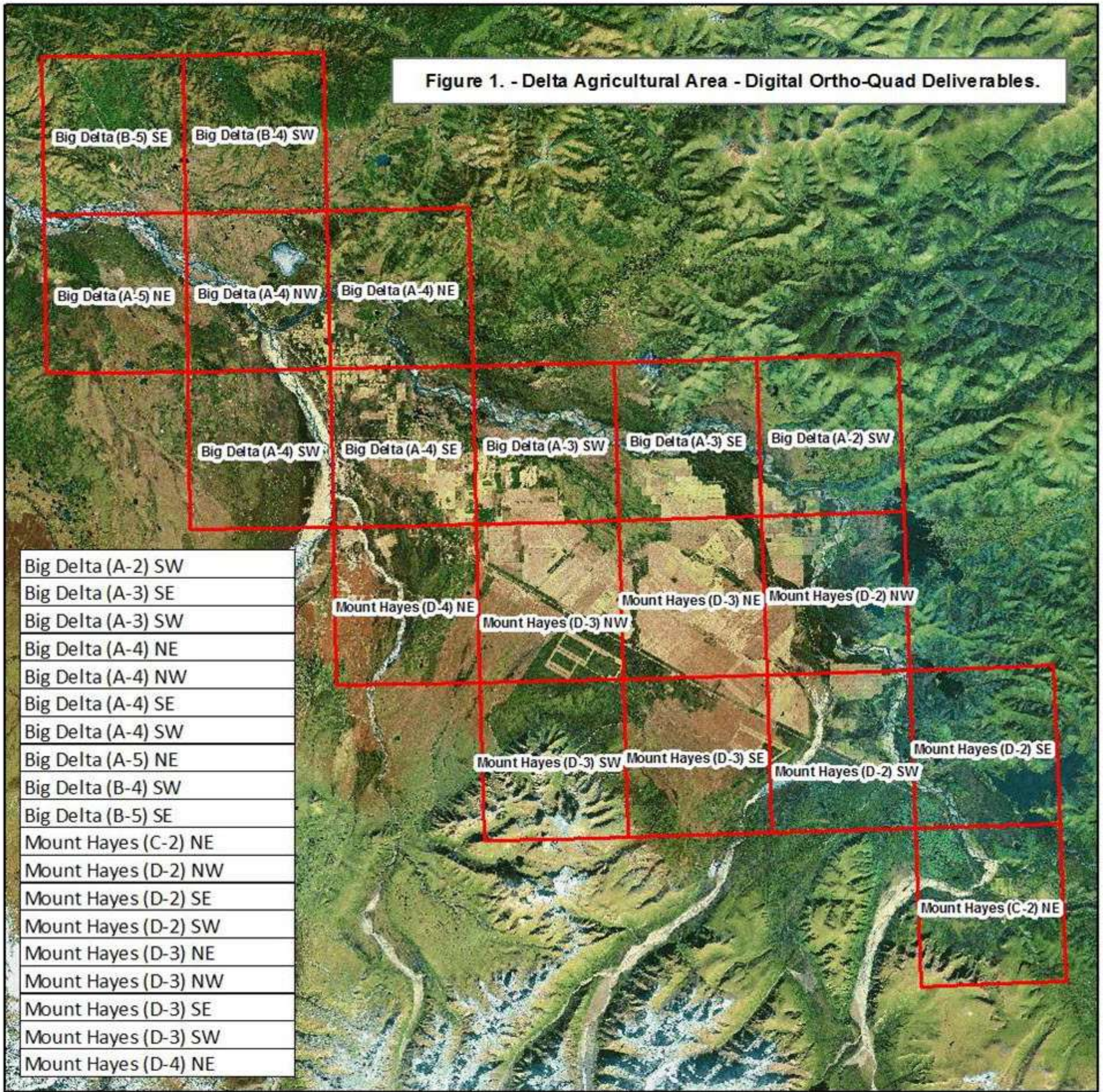
USDA-NRCS Orthoimagery, 2004 - 2011



Kodiak and Afognak Islands

- APFO reports that all remaining DOQQ's have been delivered.
- Inspections of dataset are ongoing.
- NRCS will make the entire dataset available after QA/QC and creating mosaic.



NRCS 2011 Orthoimagery Delta Junction, Alaska

- Contracted via University of Alaska, Fairbanks

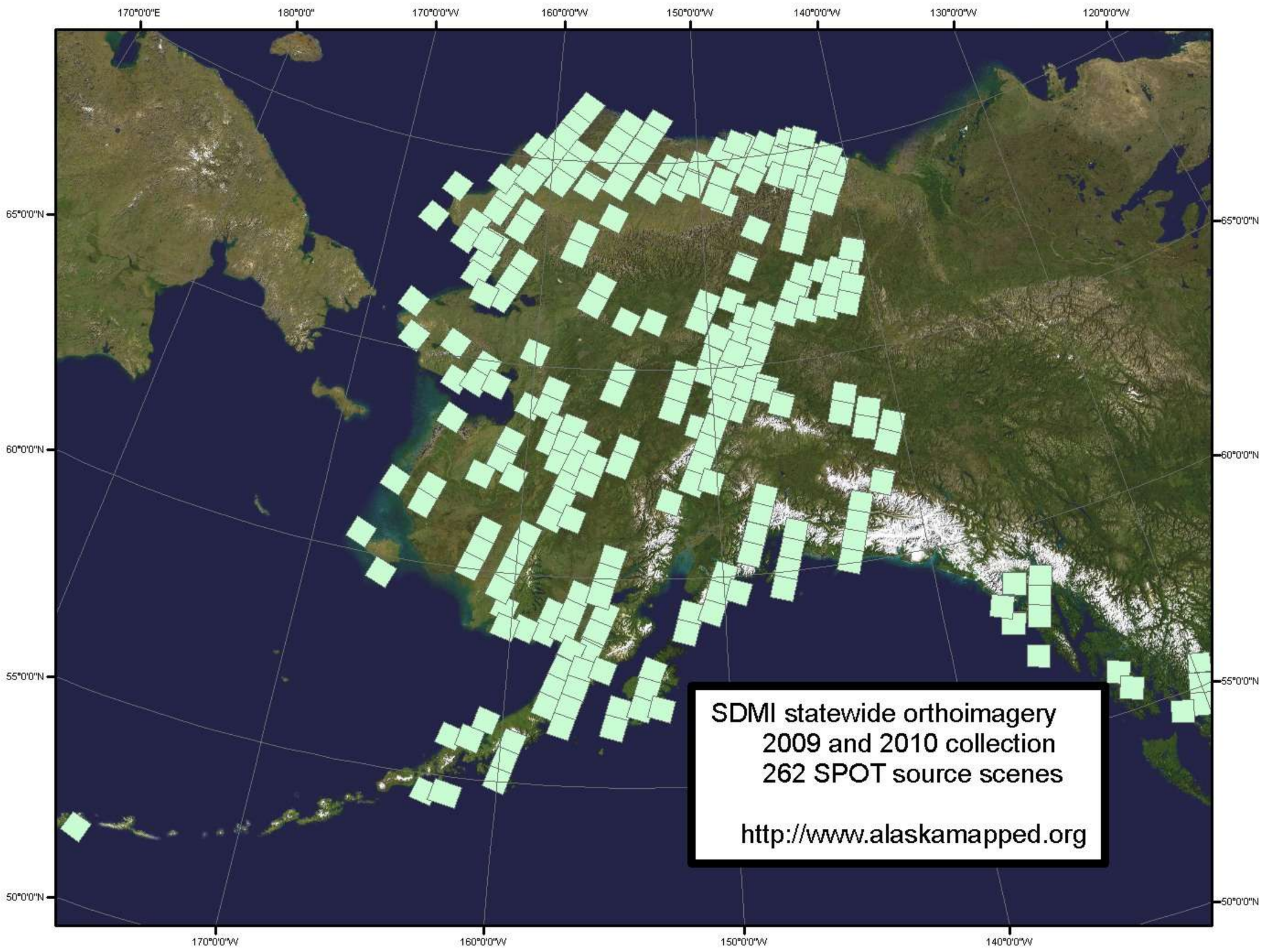
- Aerial Acquisition, 1 Meter of higher

- 4 Band

- 1:12,000 accuracy

- Public Domain

- Contract = $ 100,000


170°0'0"E
180°0'0"
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150°0'0"W
140°0'0"W
130°0'0"W
120°0'0"W
65°0'0"N
60°0'0"N
55°0'0"N
50°0'0"N
SDMI statewide orthoimagery
2009 and 2010 collection
262 SPOT source scenes
http://www.alaskamapped.org

Spot 4/5 Issues in Alaska for USDA-NRCS
USDA-FAS/USGS Option

- **USDA-NRCS has been asked to contribute towards a USGS-FAS/USGS Spot 4/5 buy for $ 250,000 in 2012 for Alaska.**

- **Contribution is for entire archive collected in 2012. Collection is made from May 1st to September 1st.**

- **Contribution (250K) is to be made annually (per calendar year).**

- **Multi-Spectral and Panchromatic data is the delivery specification. Pan Sharpen data is not included!**

- **MS/Pan data will be Ortho-rectified using new automated procedure at EDC. Procedure is under development.**

Spot 4/5 Issues in Alaska for USDA-NRCS
SDMI Option

- Phase I of the Alaska SDMI has already funded complete acquisition of Alaska (2009-2013)with Spot 5 (2.5 Meter Pan Sharpen GSD). Phase II requires additional funding.

- SDMI has complete tasking of the Spot 5 sensor in Alaska.

- 2009-2011 successfully acquired 40% of the state.

- Product to be delivered is Multi-Spectral, Pan and Pan-Sharpen Orthoimagery.

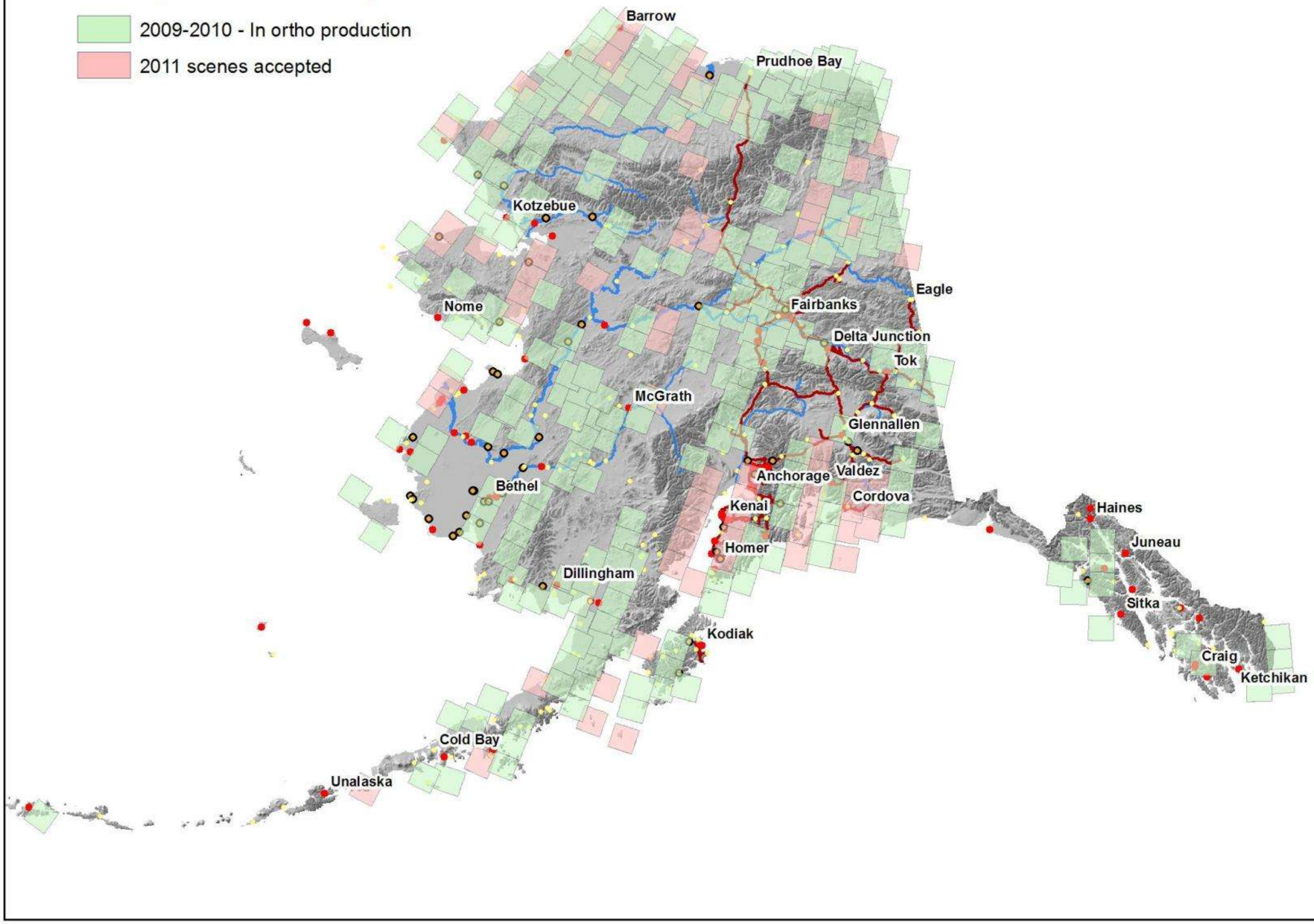
- Ortho-rectification is being done by Fugro-EarthData

- License is similar to Civil Government (Federal, State, Local, Tribal) <u>but includes NPO's.</u>

SDMI Spot Scenes Accepted

2009-2010 - In ortho production

2011 scenes accepted



Alaska SDMI Specifications for Spot 5

- 1:24,000 NMAS accuracy – 12.2-m CE90
- 2.5-meter spatial resolution
- 10- Meter Multi-Spectral, Pan Sharpened to 2.5-m GSD
- Three statewide 2.5-m mosaics
  - Pseudo natural color
  - CIR
  - Panchromatic
- Entire state – 1.56 million sq-km
- 600,000+ sq-km of new collections in 2009 & 2010
- Five seasons of collection (2009-2013): project completion – 2014
- Aero-Metric prime – project management and QA
  - Astrium / Spot Image – source data
  - Fugro EarthData – Orthomosaic processing

Spot 4/5 Issues in Alaska for USDA-NRCS

- After collecting all available information USDA-NRCS will support the SDMI Spot 5 acquisition.

- Phase I of the SDMI acquisition is already fully funded. NRCS-Alaska made a contribution.

- NRCS is principle interested in the Best Available Pan Sharpen Imagery for a given location/tile in Alaska.

- Limitations in funding put an emphasis on other Orthoimagery/DEM priorities.

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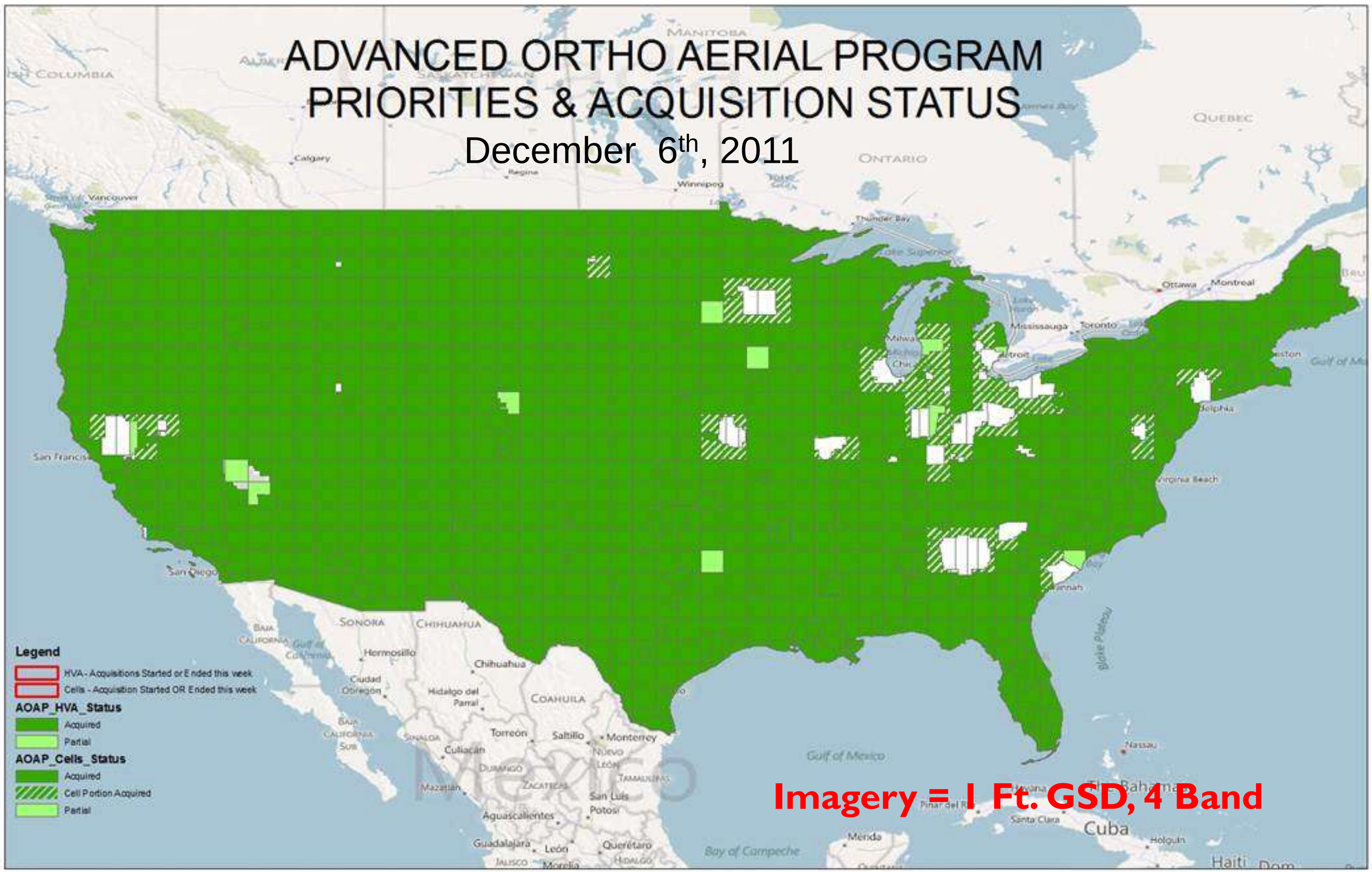
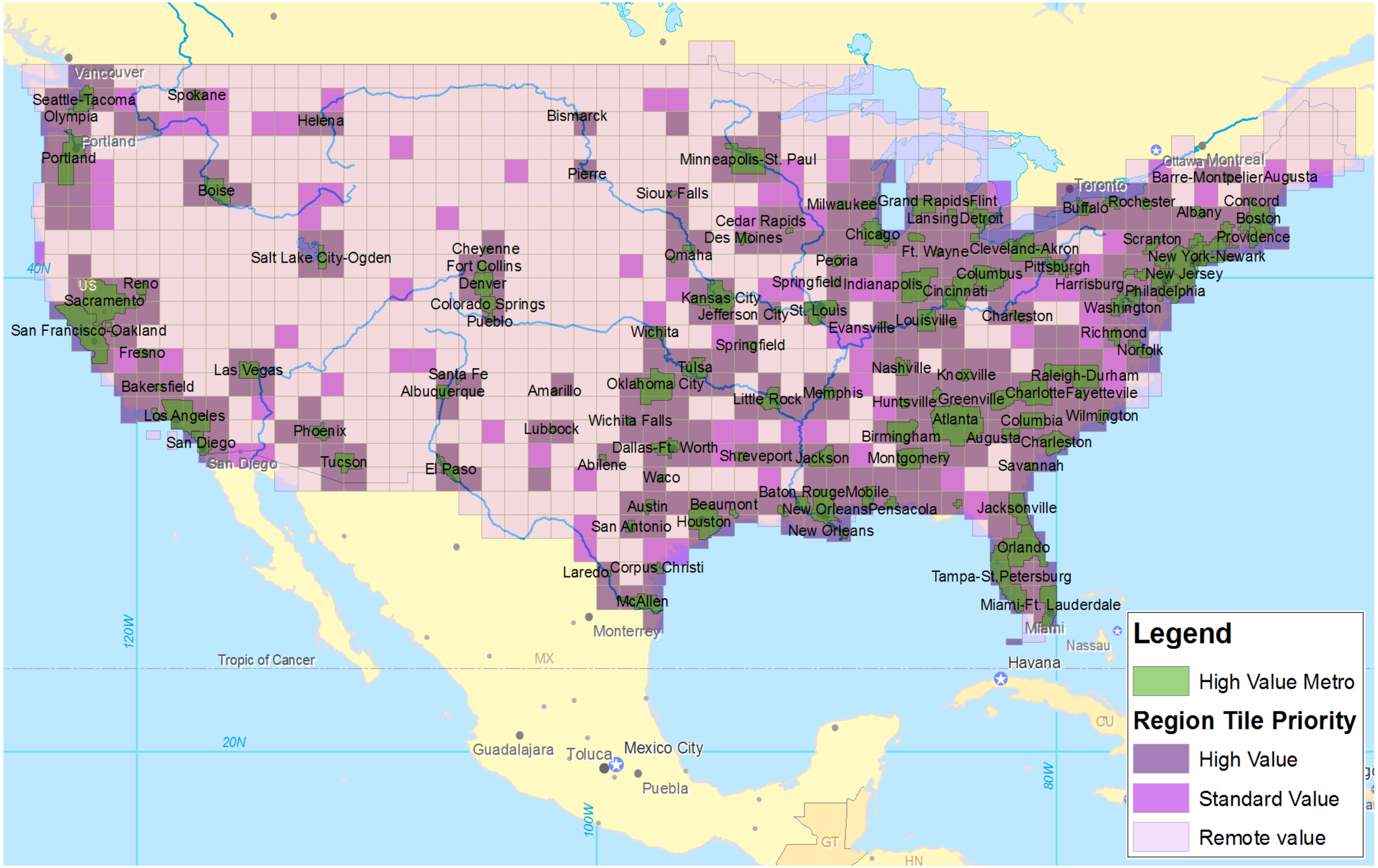
DigitalGlobe AOAP Status for US 48 and Alaska



DIGITALGLOBE
CLEARLY THE BEST

DigitalGlobe Clear30 Program USA Block Prioritization



AOAP Program Accuracy Specification

Class of Block	Radial accuracy @ 95% confidence	Equivalent RMSE in X and Y
High-Value Area	10ft and 15 ft	4ft and 6 ft
High-Value Block	10ft and 15 ft	4ft and 6 ft
Standard Block	15 ft	6 ft
Remote Block	15 and 20 ft	6 and 8 ft

IFTN High Resolution Horizontal Accuracy (1 Ft. GSD = 5 Ft) (.5 Ft. GSD = 2.5 Ft.)

At least 10% of the Clear30 Program area will meet the 10ft radial accuracy standard at 95%, and will include all of the Dense Urban Core, and as much High Value Areas as possible until such time as 10% of the total land area is reached, or all of the HV areas have been utilized.

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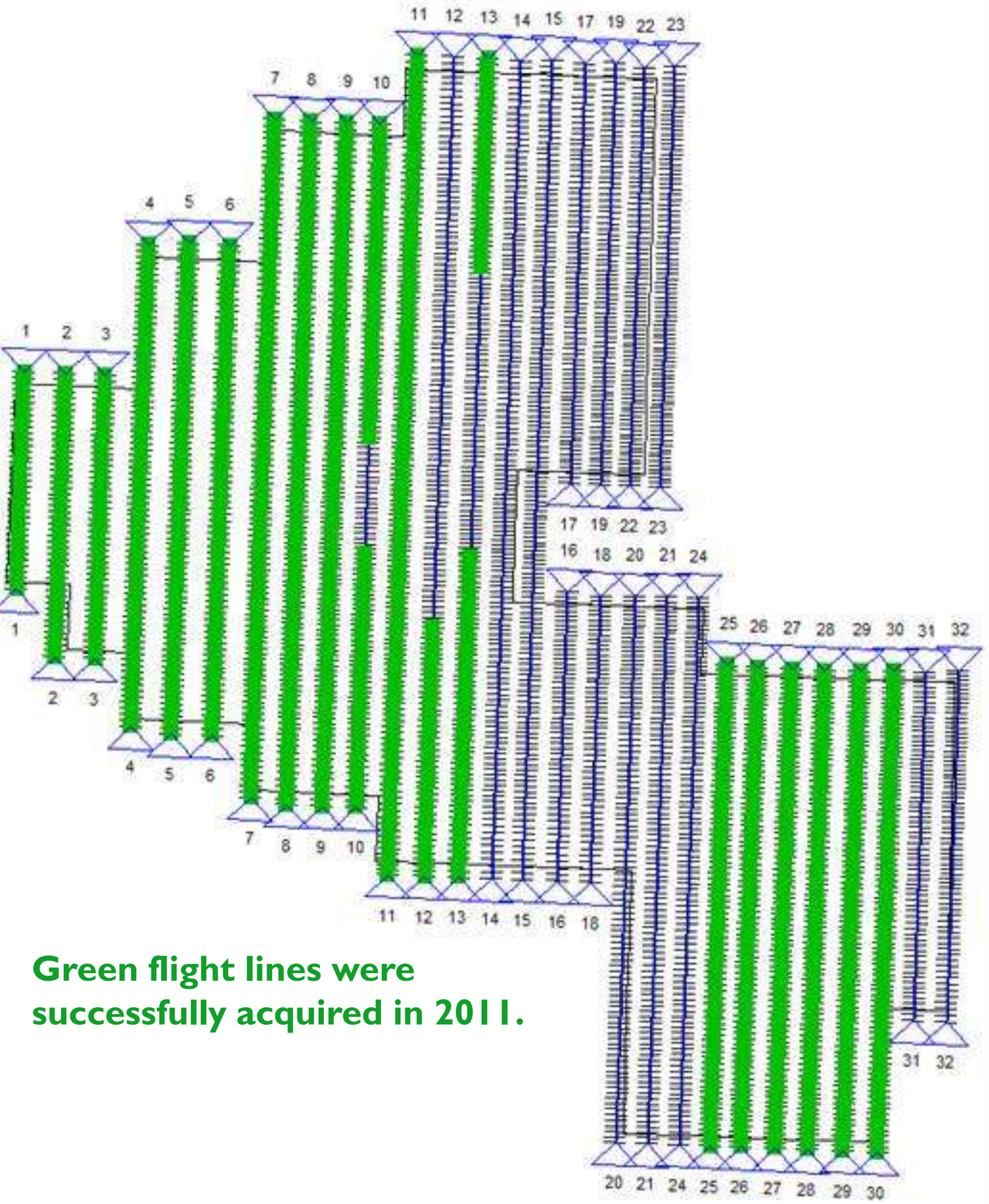
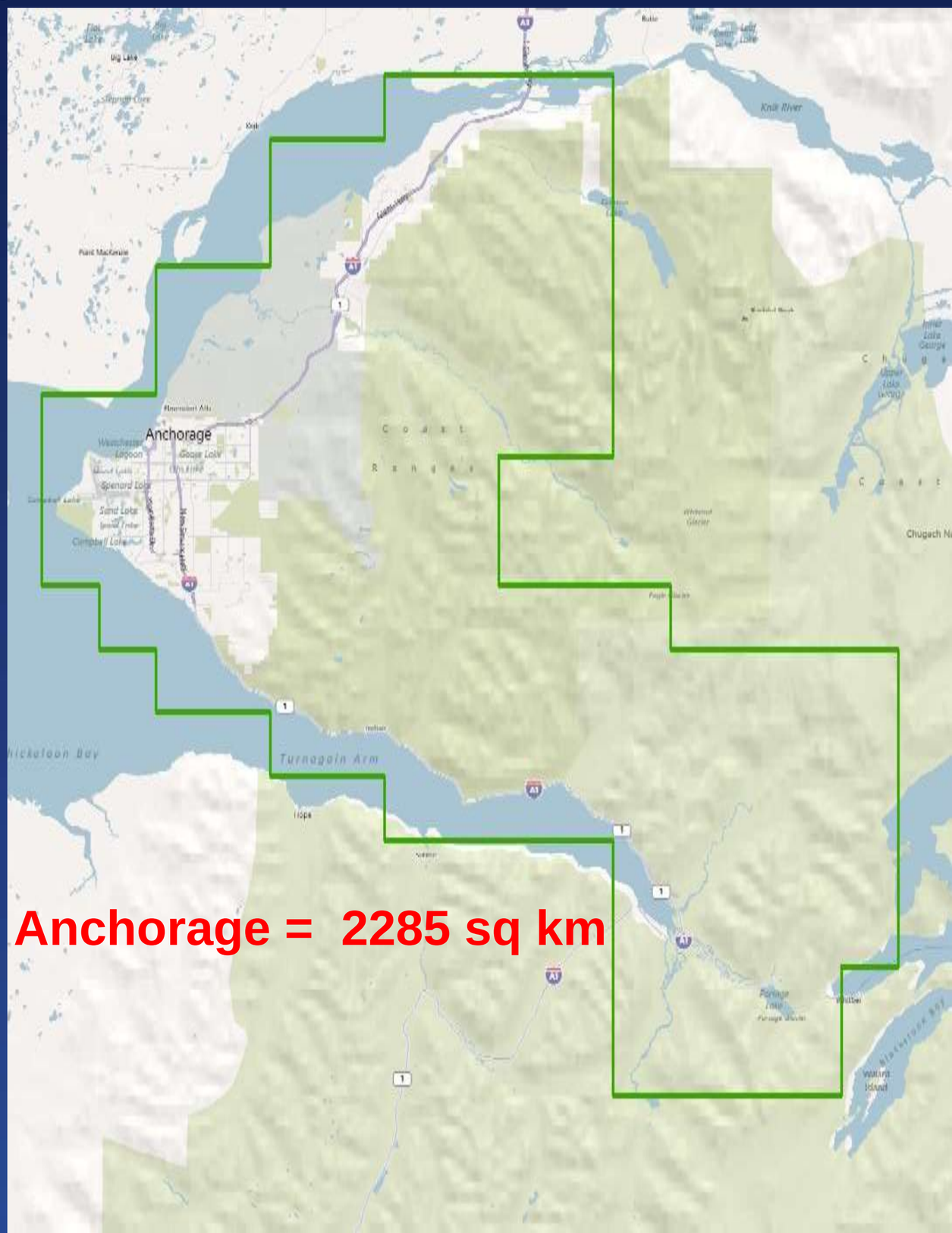
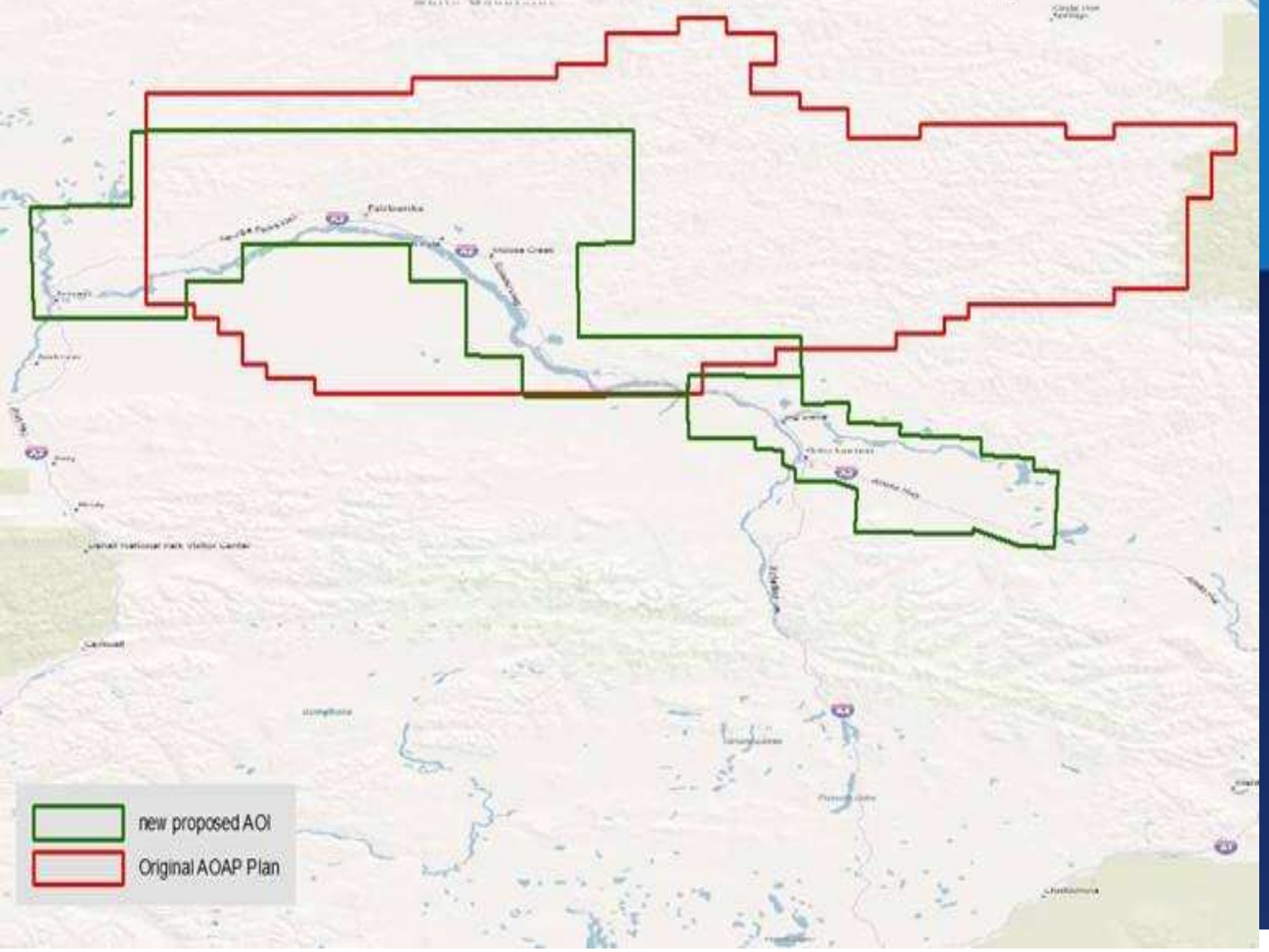
AOAP Anchorage, Alaska

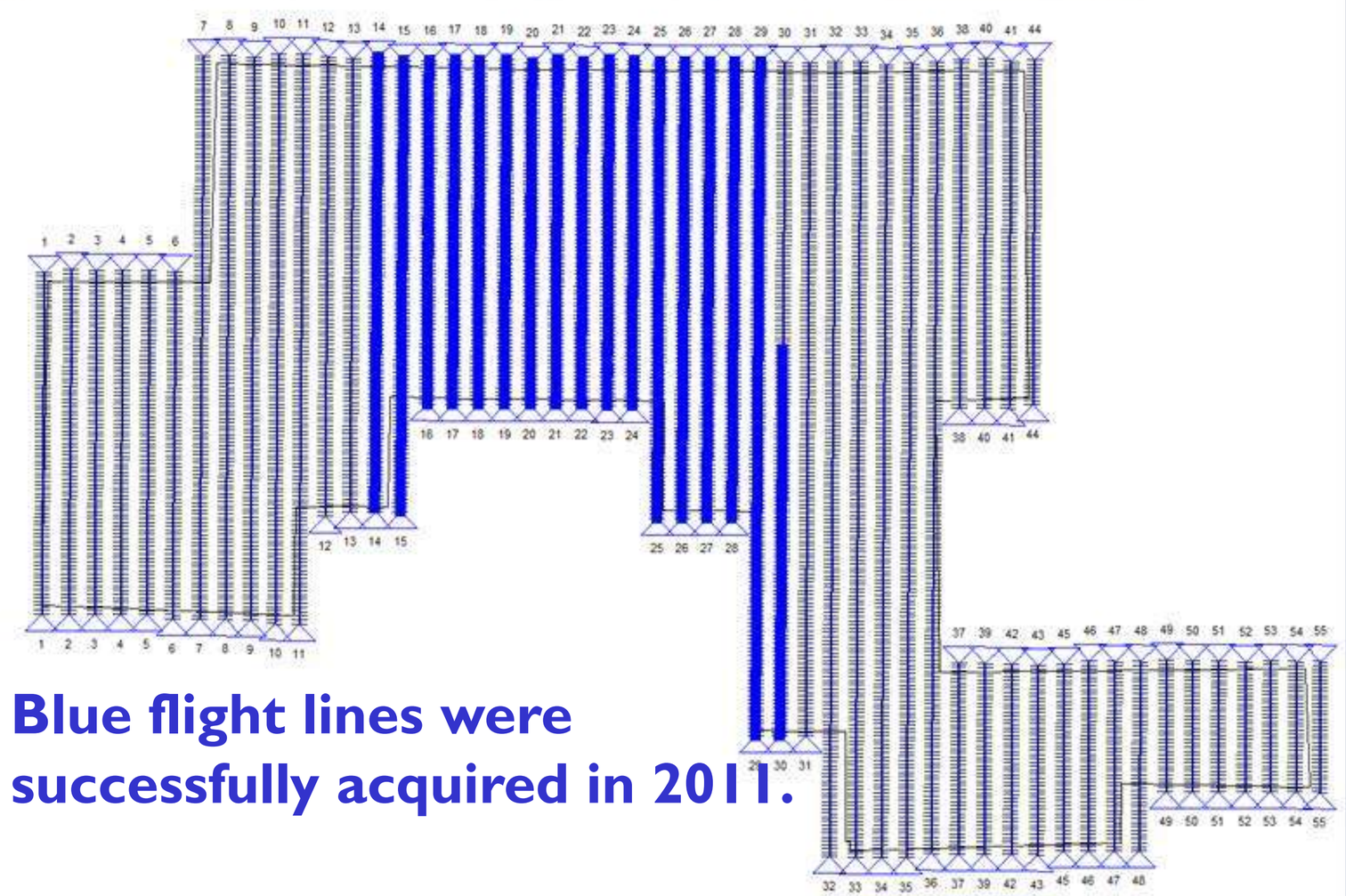


Green flight lines were successfully acquired in 2011.



Anchorage = 2285 sq km





Blue flight lines were successfully acquired in 2011.

AOAP Fairbanks, Alaska

Green AOI was used for Acquisition

Fairbanks = 2757 sq km

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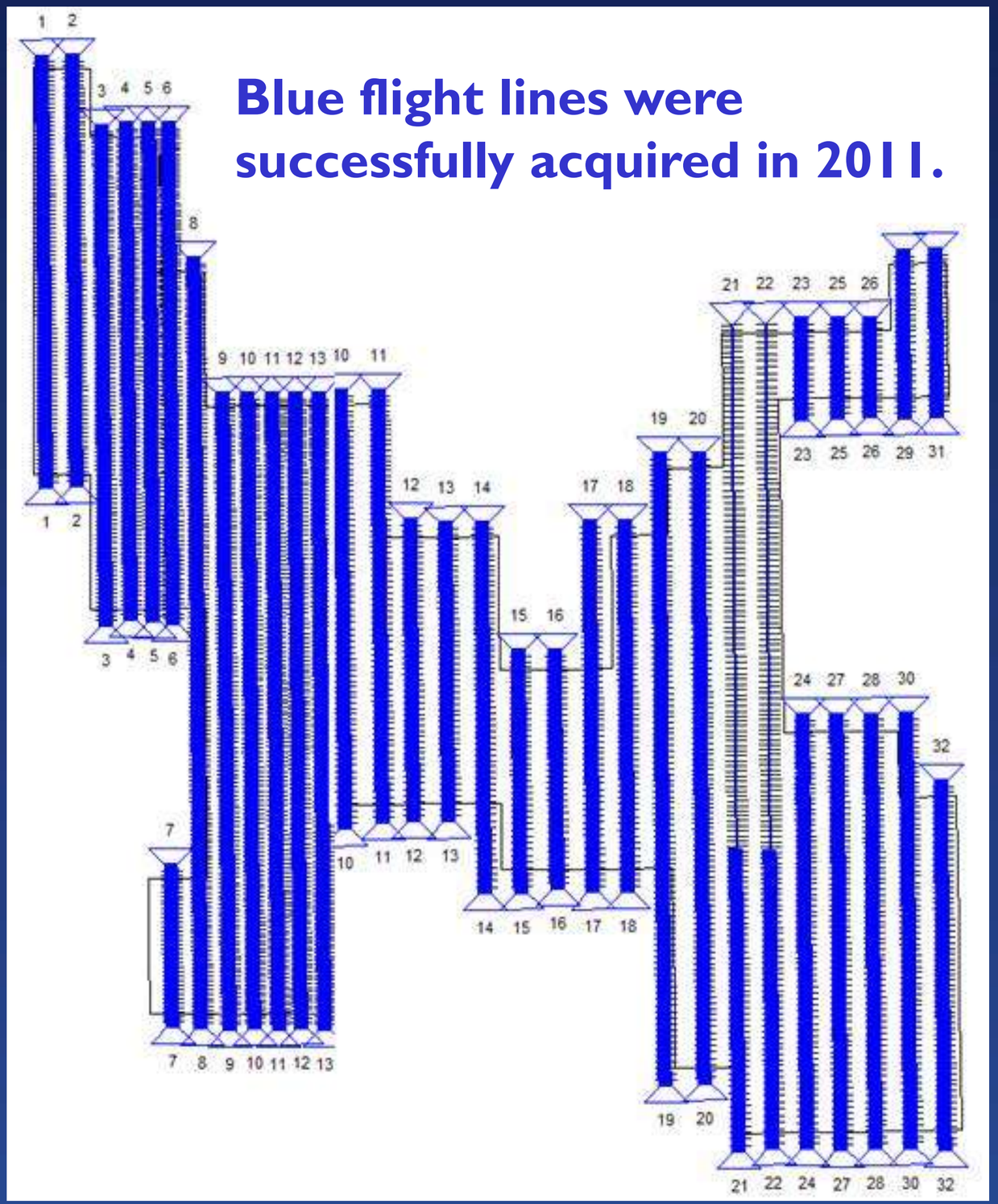
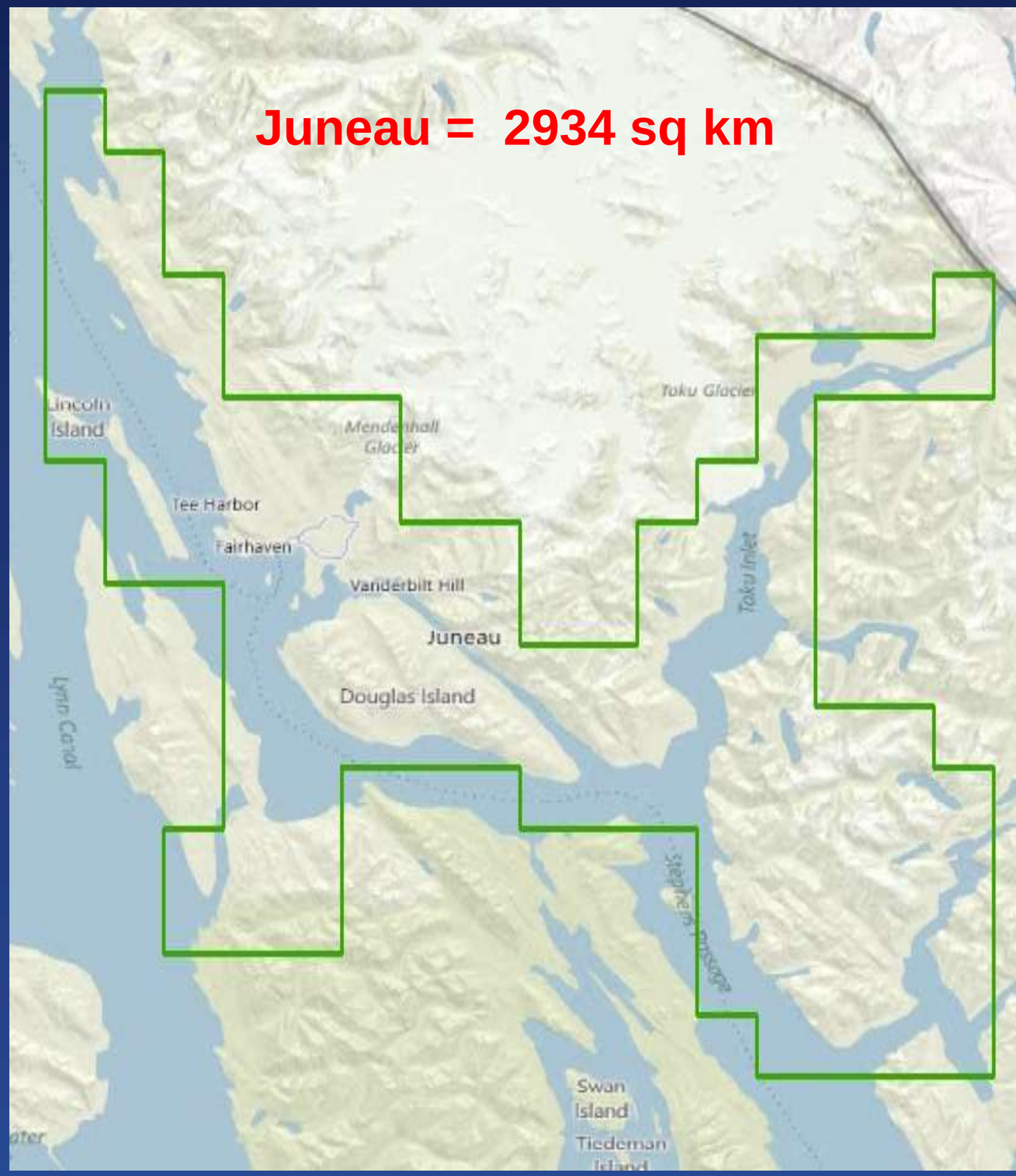
AOAP Juneau, Alaska





AOAP Alaska Cost

- **The following quote is for 4 Band Imagery, 1 Ft. GSD, Enterprise Premium License**

Fairbanks = 2757 sq km = $ 48,247.50
Juneau = 2934 sq km = $51,345.00
Anchorage = 2285 sq km = $39.987.50

Total km2 = 7976 km2

If all three areas above were purchased then the cost would be $ 114,056

30 Months after purchase the "Sunset" clause would rake effect. Essentially unlimited distribution except to Orthoimagery re-sellers.

- **If two or all three AOIs are purchased (5001-10,000 km2 range), the pricing for the AOAP 30 Month Sunset EULA would be $14.30/km2 or $114,056 total.**

- **If a single AOI is purchased, the 30 Month Sunset EULA pricing would be $17.50/km2 (1001-3000 km2 range) or as follows for each of the AOIs.**

- **NRCS highest priority area is Juneau, Alaska.**

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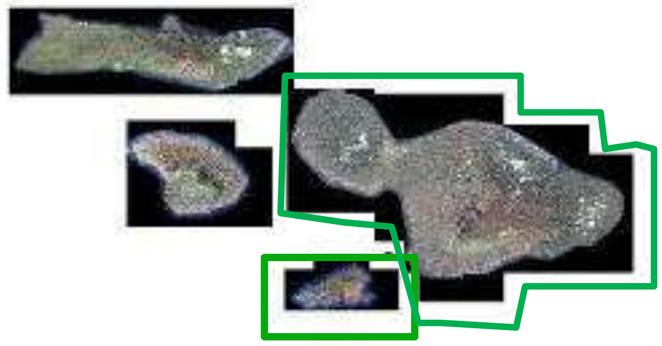
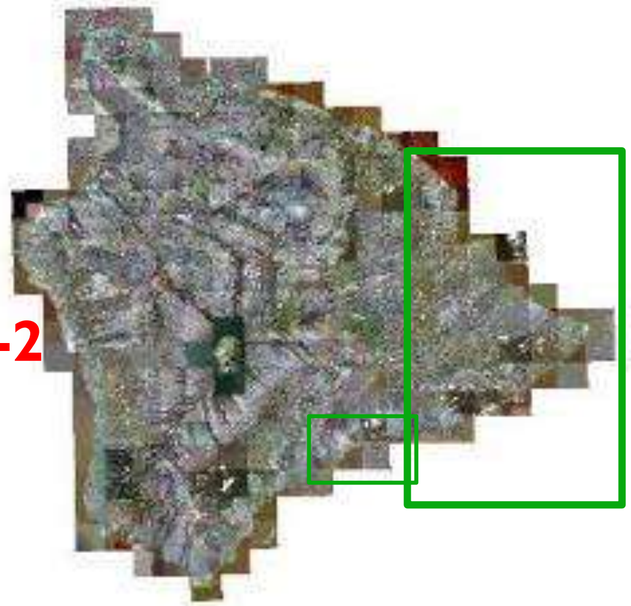
Hawaiian Islands Orthoimagery Status
DigitalGlobe WorldView-2 Status
November 2011



Orthoimagery Delivered and Accepted
Oahu, Kauai, Niihau, Kahoolawe, Maui and the East End of Hawaii



- **USGS, State of Hawaii and USDA have contracted for complete coverage of all 8 major Hawaiian Islands with DigitalGlobe/WorldView-2 Satellite Orthoimagery.**

- **Hawaii will be first state with complete collection with DigitalGlobe – WorldView-2, 8 Band Multi-Spectral Imagery!**

- **Remaining Hawaii Islands will be finished soon with new acquisitions. (March 2012).**

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North Hawaii
November 28th, 2011

Area outlined in red below is from two combined AOI's contracted to DigitalGlobe

Catalog - Windows Internet Explorer

http://browse.digitalglobe.com/imagefinder/catalogListDisplay.do?noCache=1322002118338

Select	Browse Image	Catalog Id	Sensor Vehicle	Acquisition Date	Max Off Nadir Angle	Max Off Nadir Angle	Sun Elevation	Cloud Cover Pct	Cloud Cover Pct	Imaging Bands
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☐	☑ 2 View	10300100065F1A00	WV02	2010/08/16	16.63°	15.52°	69.78°	9%	10%	Pan_MS1_MS2
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☐	☑ 5 View	103001000B97E700	WV02	2011/06/06	29.38°	29.04°	71.95°	5%	3%	Pan_MS1_MS2
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☐	☐ View	103001000EBB2400	WV02	2011/10/01	17.11°	17.11°	62.94°	5%	15%	Pan_MS1_MS2
☐	☑ 14 View	103001000E70C200	WV02	2011/10/20	19.75°	19.75°	57.37°	29%	13%	Pan_MS1_MS2
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☐	☑ 3 View	1030010004B87D00	WV02	2010/02/27	26.99°	25.33°	53.52°	5%	0%	Pan_MS1_MS2
☐	☑ 11 View	1030010004D32300	WV02	2010/03/10	24.14°	24.14°	56.85°	17%	12%	Pan_MS1_MS2
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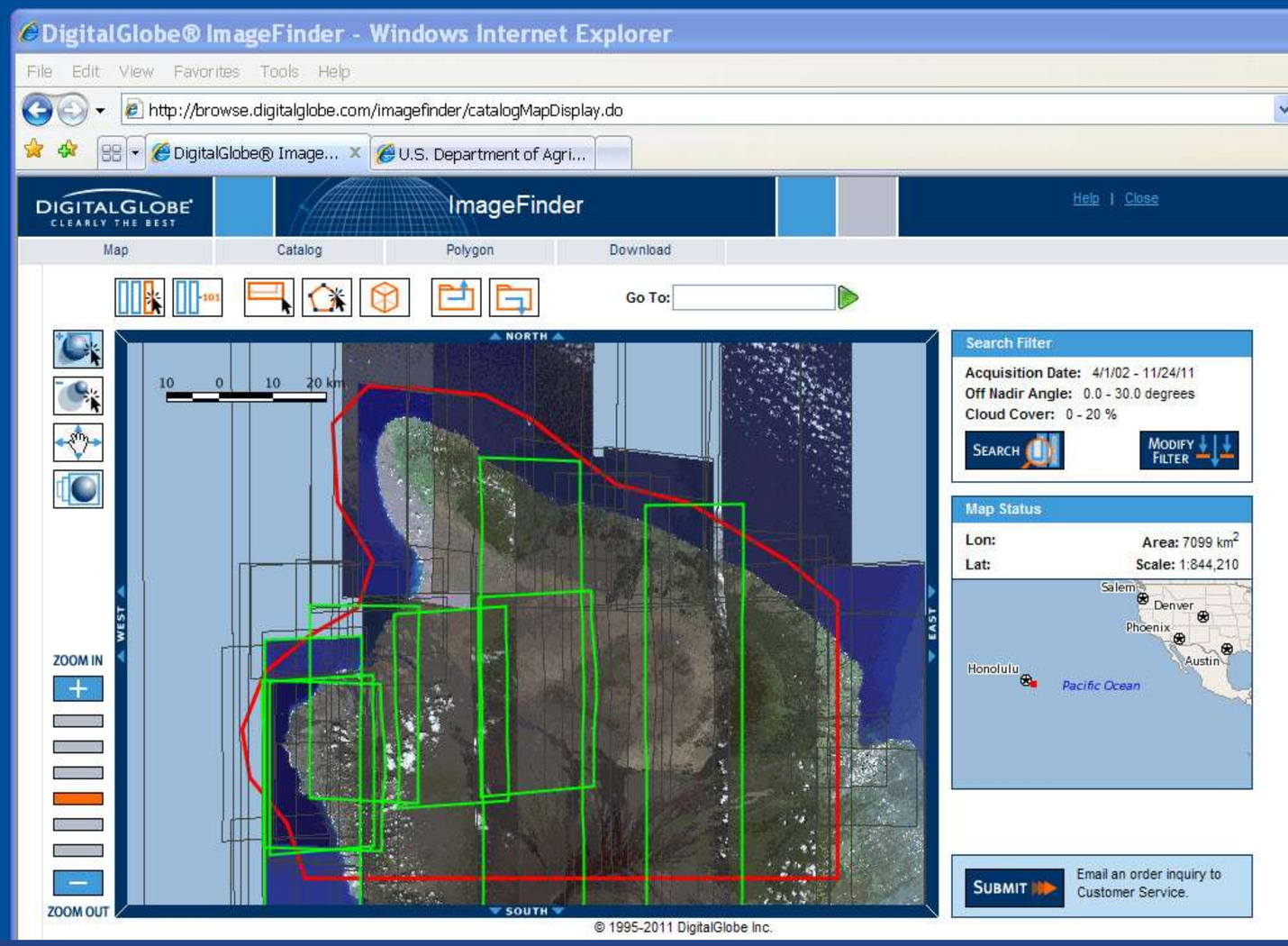
Close



Most Areas with significant cloud coverage has alternate WV-2 Imagery that can be patch.

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South Hawaii
November 28th, 2011

Area outlined in red below is from two combined AOI's contracted to DigitalGlobe

Catalog - Windows Internet Explorer

http://browse.digitalglobe.com/imagefinder/catalogListDisplay.do?noCache=1321989385633

300 images meet your filter criteria

Restore Deleted Rows | Help | Close

Select	Browse Image	Catalog Id	Sensor Vehicle	Acquisition Date	Total Max Off Nadir Angle	Area Max Off Nadir Angle	Area Min Sun Elevation	Total Cloud Cover Pct	Area Cloud Cover Pct	Imaging Bands
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☑	☑ 8 View	103001000B97E700	WV02	2011/06/06	29.38°	28.83°	71.89°	5%	4%	Pan_MS1_MS2
☐	☑ 13 View	103001000C3A1D00	WV02	2011/07/22	17.16°	15.62°	74.03°	6%	1%	Pan_MS1_MS2
☐	☑ 7 View	10300100040A0900	WV02	2010/03/10	24.48°	22.00°	56.96°	9%	8%	Pan_MS1_MS2
☐	☑ 12 View	1030010008176F00	WV02	2010/12/26	15.35°	15.35°	44.25°	0%	0%	Pan_MS1_MS2
☐	☑ 23 View	103001000C98E100	WV02	2011/08/21	17.72°	17.72°	72.05°	17%	2%	Pan_MS1_MS2
☐	☑ 6 View	10300100042DEE00	WV02	2010/02/27	29.05°	27.23°	53.80°	0%	0%	Pan_MS1_MS2
☐	☑ 11 View	1030010008BAA700	WV02	2010/12/04	15.24°	13.53°	45.69°	24%	19%	Pan_MS1_MS2
☐	☑ 5 View	1030010004B87D00	WV02	2010/02/27	26.99°	21.66°	53.83°	5%	12%	Pan_MS1_MS2
☐	☐ View	10300100075AB400	WV02	2010/10/18	21.74°	21.74°	58.23°	7%	7%	Pan_MS1_MS2
☐	☐ View	1030010008A65400	WV02	2010/12/09	24.63°	24.63°	46.15°	0%	0%	Pan_MS1_MS2
☐	☑ 4 View	1030010008436600	WV02	2010/12/26	11.16°	11.11°	43.93°	18%	0%	Pan_MS1_MS2
☐	☐ View	10300100035E7100	WV02	2009/12/15	18.29°	16.54°	43.38°	4%	7%	Pan_MS1_MS2
☐	☑ 3 View	1030010003779F00	WV02	2010/01/25	22.33°	20.67°	45.44°	4%	2%	Pan_MS1_MS2
☐	☑ 10 View	1030010006739C00	WV02	2010/07/25	14.63°	14.63°	70.69°	19%	19%	Pan_MS1_MS2
☑	☑ 2 View	103001000765EE00	WV02	2010/09/29	15.97°	14.54°	62.90°	7%	5%	Pan_MS1_MS2

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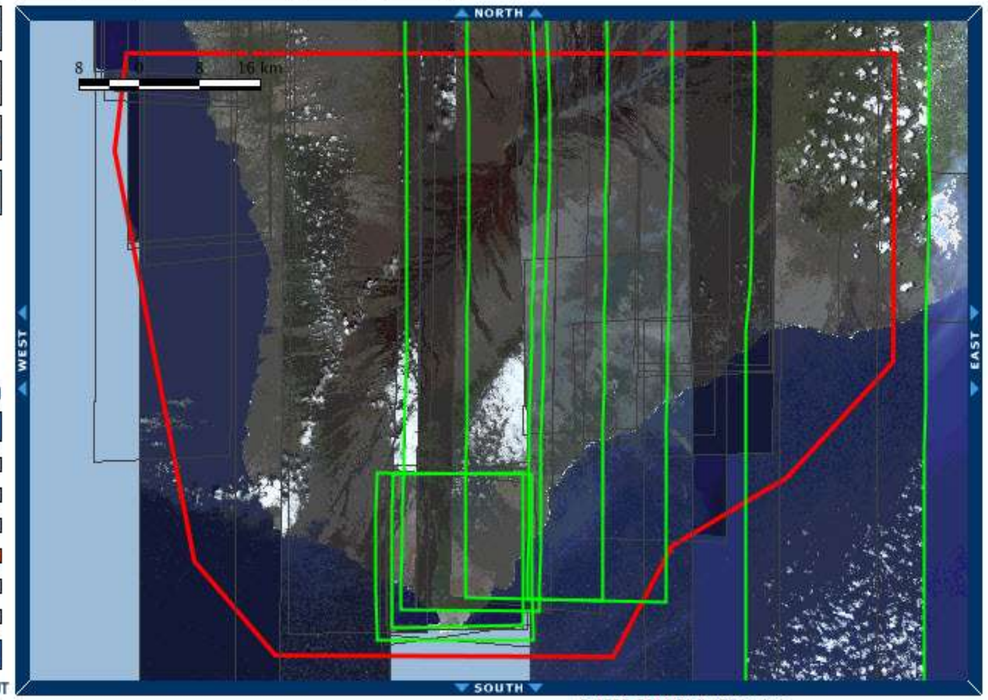

Search Filter

Acquisition Date: 4/1/02 - 11/24/11
Off Nadir Angle: 0.0 - 30.0 degrees
Cloud Cover: 0 - 50 %

SEARCH | MODIFY FILTER

Map Status

Lon: Area: 6358
Lat: Scale: 1:698

SUBMIT — Email an order inquiry t Customer Service.

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Most Areas with significant cloud coverage has alternate WV-2 Imagery that can be patch.

Catalog - Windows Internet Explorer

http://browse.digitalglobe.com/imagefinder/catalogListDisplay.do?noCache=1321978176325

Select	Browse Image	Catalog Id	Sensor Vehicle	Acquisition Date	Total Max Off Nadir Angle	Area Max Off Nadir Angle	Area Min Sun Elevation	Total Cloud Cover Pct	Area Cloud Cover Pct	Imaging Bands
☐	☑ 7 View	10300100098AD100	WV02	2011/02/05	18.69°	18.69°	48.21°	1%	1%	Pan_MS1_MS2
☐	☑ 5 View	10300100072DF400	WV02	2010/10/18	19.36°	18.08°	56.09°	3%	7%	Pan_MS1_MS2
☐	☑ 4 View	103001000A5AEE00	WV02	2011/02/24	24.98°	23.14°	54.99°	4%	1%	Pan_MS1_MS2
☐	☑ 2 View	1030010008B33500	WV02	2010/11/09	19.11°	19.11°	49.62°	0%	0%	Pan_MS1_MS2
☐	☑ 1 View	1030010007683900	WV02	2010/12/01	12.58°	12.58°	44.73°	0%	0%	Pan_MS1_MS2
☐	☑ 9 View	1030010008A02A00	WV02	2011/01/22	17.18°	16.01°	46.01°	12%	12%	Pan_MS1_MS2
☐	☐ View	10300100048AF100	WV02	2010/03/18	19.27°	18.85°	59.00°	16%	29%	Pan_MS1_MS2
☐	☑ 8 View	1030010005797400	WV02	2010/06/22	19.26°	19.04°	71.08°	5%	6%	Pan_MS1_MS2
☐	☑ 3 View	10300100037A6800	WV02	2009/12/28	27.41°	27.41°	42.64°	24%	24%	Pan_MS1_MS2
☐	☑ 10 View	1030010009D2F700	WV02	2011/02/24	15.85°	13.44°	54.87°	4%	8%	Pan_MS1_MS2
☐	☑ 6 View	103001000AA26B00	WV02	2011/04/28	7.78°	7.78°	74.91°	7%	7%	Pan_MS1_MS2

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Internet 100%

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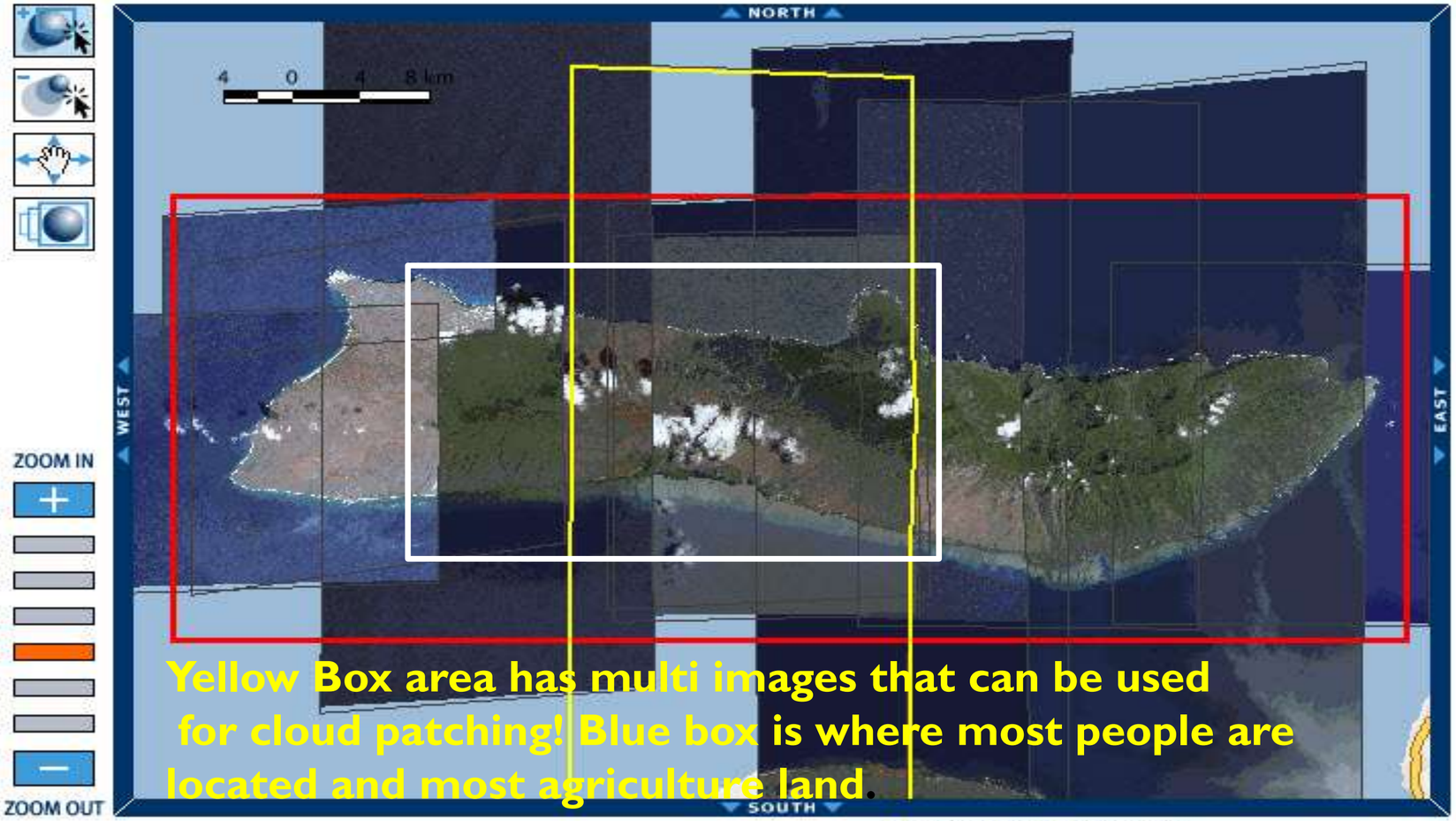

Yellow Box area has multi images that can be used for cloud patching! Blue box is where most people are located and most agriculture land.

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Search Filter

Acquisition Date: 4/1/02 - 11/24/11
Off Nadir Angle: 0.0 - 30.0 degrees
Cloud Cover: 0 - 50 %

SEARCH MODIFY FILTER

Map Status

Lon: Area: 1964 km²
Lat: Scale: 1:424,540

SUBMIT Email an order inquiry to Customer Service.

United States Department of Agriculture
Natural Resources Conservation Service

USDA NRCS

USDA-NRCS Orthoimagery Distribution Status
Pacific Basin Status

• USDA has collected approximately ~ 98% of all land mass within the jurisdiction of the United States:

- Guam
- Commonwealth of the Northern Mariana Islands
- Northwestern Hawaiian Islands
- Palau
- American Samoa
- Federated States of Micronesia
- Marshall Islands
- US Trusts (Palmyra, Wake, etc..)

• Most islands acquired also contain any visible shallow water reef areas.

• All data is Satellite One Meter or higher resolution (DG-QB2, DG-WV2, GeoEye-1)

• USDA upgraded most but not all DG-QB2 data to Enterprise Premium License in Fall 2009.

United States Department of Agriculture
Natural Resources Conservation Service

USDA NRCS

Distribution List (11/20/11) for USDA-NRCS Orthoimagery for Hawaii & Pacific Basin. Most data has been distributed by NRCS-NGMC or USGS-Hawaii (Henry Wolter).

- NRCS - Hawaii
- FSA - (Hawaii, APFO-Salt Lake City)
- USGS Hawaii(Henry Wolter)
- University of Hawaii (Many locations in Hawaii-Oahu, Hilo, Majuro/Marshall Islands)
- USFS (4 Location in California, Oregon and Hawaii)
- USGS-Rocky Mountain Mapping Center
- USGS-Eros Data Center (EDC)
- USGS- Pacific Coastal and Marine Science Center (Santa Cruz, CA)
- NOAA (Several Locations including South Carolina, Maryland and Hawaii)
- DOD - Florida (Soon will receive)
- NGA (2 Locations, USGS-EDC and Maryland - Soon)
- DHS (FBI, CG, Secret Service and others via USGS in Hawaii)
- Pacific Disaster Center (Kihei, Maui and Honolulu, Oahu)
- The Natures Conservancy (Several Locations)
- West Maui Watershed
- Maui County
- FAA/SOA Training (IfSAR, Maui-WV2, Kauai-WV2, Nicholas Mastrodicasa)
- Island Conservation (David Will, Santa Cruz)
- NPS (Several Locations, Maui, American Samoa, Denver etc..)
- EPA (Washington DC, Raleigh, NC)

United States Department of Agriculture
Natural Resources Conservation Service

USDA NRCS

USDA & NDOP Cooperation of Pacific Basin Orthoimagery

USDA-NRCS/USFS/NOAA 2011 Acquisition Highlights – Pacific Basin

Current List of Pacific Basin Areas to be acquired (August, 2011).

- Guam: High Resolution Orthoimagery and LiDAR

- American Samoa: (Tutuila, East & West Manua, Swain, Rose)Complete Coverage!!!

- Commonwealth of the Mariana Islands: Saipan

- Federated States of Micronesia: Chuuk Islands, Ant Atoll

- Marshall Islands: Majuro (Capital), Kwajalein, Arno, Ailinglaplap, Namorik, Wotje, Lae, and Jaluit.

NOAA Collected the following (DG-WV2, 8 Band)

- North West Hawaiian Islands: Midway, French Frigate Shoals, Gardner Pinnacles, Kure Atoll, Laysan Island, Lisianski Island, Maro Reef and Pearl and Hermes Atoll

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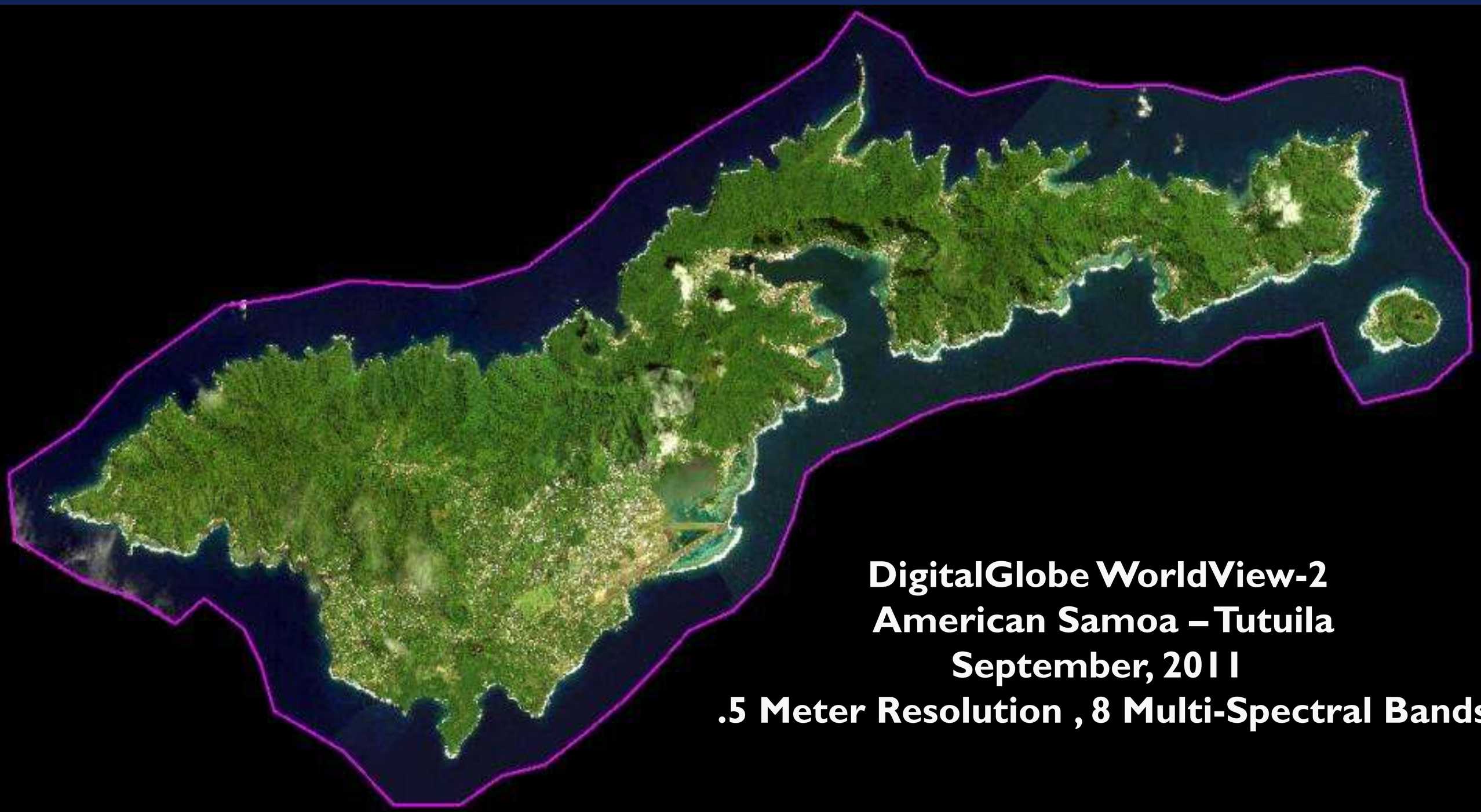
Natural Resources Conservation Service

Commonwealth of the Northern Mariana Islands
Saipan Island
USDA-NRCS Orthoimagery
DG-WV2, Feb 2011

United States Department of Agriculture
Natural Resources Conservation Service

USDA NRCS



DigitalGlobe WorldView-2
American Samoa – Tutuila
September, 2011
.5 Meter Resolution , 8 Multi-Spectral Bands

Hawaii and Pacific Basin 2012

NRCS and USFS* priorities for 2012:

- Palau (Complete Coverage), USFS Funding available

- Commonwealth of the Northern Mariana Islands (Remaining Islands)

- Federated States of Micronesia, High Population areas

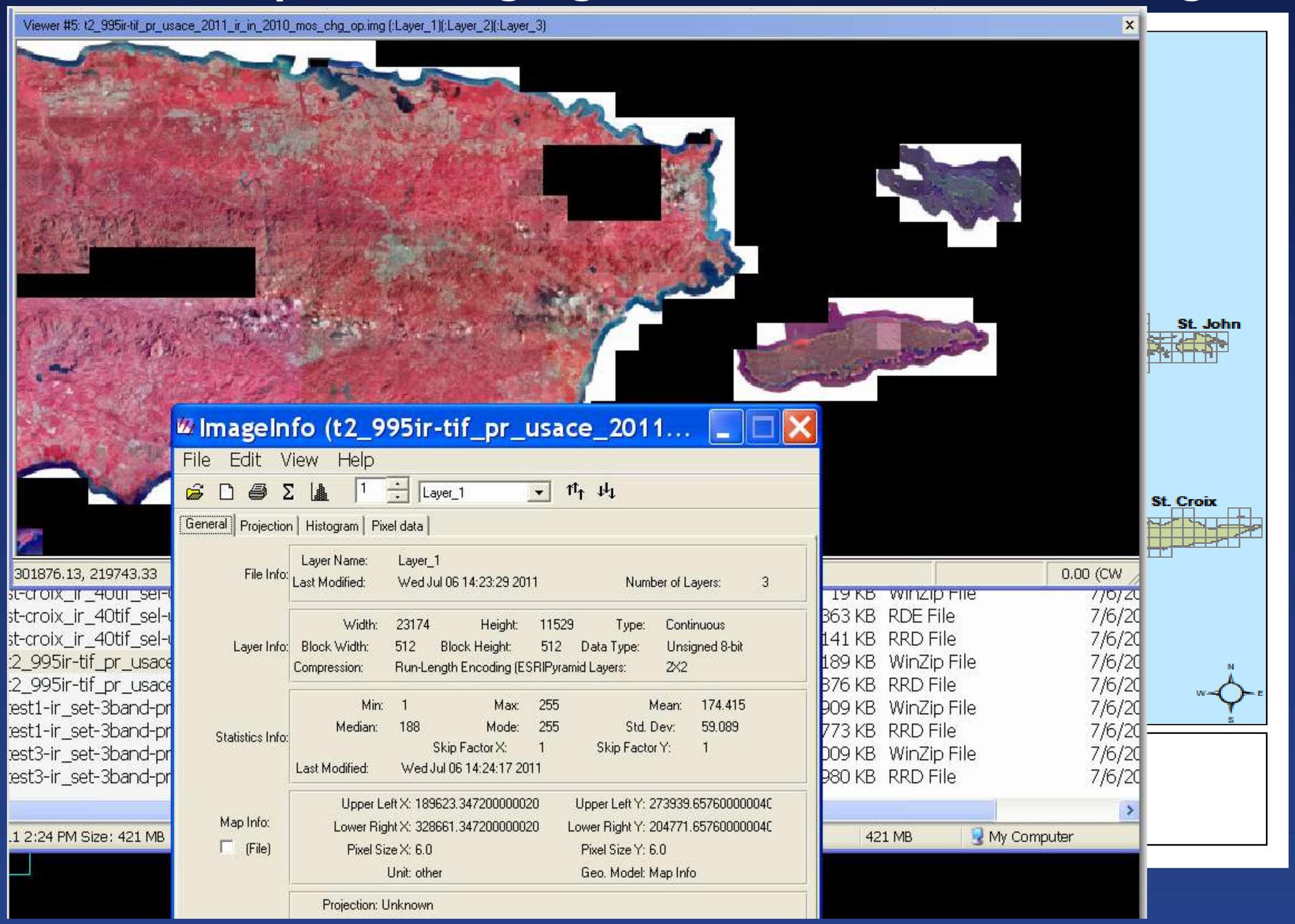
- Marshall Islands, Remaining High Population islands not completed in 2011

USDA is looking for funding partners in the remaining Pacific Basin areas for DG-WV2.

United States Department of Agriculture
Natural Resources Conservation Service

USDA NRCS

NRCS 2011 Acquisition Highlights – Puerto Rico and US Virgin Islands



- USACOE/3001 have released a preliminary test dataset for PR/VI.
- There are many issues with the prelim datasets. USACOE has issued a warning letter to "Kimball" to redo many areas in Puerto Rico. March 2012 is the next deadline for delivery.

USDA-NRCS Orthoimagery Acquisition 2011

1,900,000 NAIP

510,000* Alaska – New Projects (Yukon Flats, Delta Junction)

150,000 Pacific Basin

2,560,000 Total for Orthoimagery

* FY 2010 and 2011 Funding

High Priority for 2012

1) **NAIP 2012**

2) **Alaska (Juneau, Matsu Valley and various other areas)**

3) **Pacific Basin (Palau, CNMI and other areas)**

United States Department of Agriculture
Natural Resources Conservation Service

USDA NRCS

Wasatch National Forest
End of Presentation